

B. To Create New Cellular Systems for Enhanced Competition Requires a New Proceeding, With a Different Objective, Based on a Proper Record

1. If the Commission's Agenda Is Cellular Competition, a New Proceeding Is Needed

The record before the Commission does not provide a substantive basis for a high-power, large-cell cellular allocation. As the Commission has observed, the PCS experiments to date have principally involved low-power microcell systems.¹⁴⁴ The Commission does not allude in the *NPRM* to any record on which to base a 2 GHz cellular allocation. It merely hypothecates that "there may be a demand" for such high power large cell services as part of "the full range of possible PCS system designs."¹⁴⁵ This does not provide an adequate, reasoned basis for establishing high power PCS as a new cellular-clone service.

If the Commission's agenda is indeed to create new cellular competitors, it should acknowledge that fact, stop any pretense of achieving that purpose through the allocation of spectrum for "new personal communications services," and start a new proceeding for that purpose using spectrum outside the *Emerging Technologies* reserve. The new proceeding would require a record that addresses the state of competition in cellular service.

2. The Cellular Industry Is Competitive and Different from PCS

If the Commission chooses to begin a proceeding to create new cellular licensees to increase the level of competition in cellular, it will have to consider the record of competition in the cellular service industry. The Commission has acknowledged, however, that it has not compiled such a record.¹⁴⁶ There is a substantial body of evidence that the cellular industry is competitive.¹⁴⁷ The

¹⁴⁴ *NPRM*, 7 FCC Rcd. at 5721.

¹⁴⁵ *Id.*

¹⁴⁶ See *Cellular Bundling*, 7 FCC Rcd. at 4029 (1992) ("The record is not conclusive as to whether the service market is fully competitive."). At a July 1, 1992 congressional hearing conducted by Senator Burns (R-Mont.), the Chief of the Common Carrier Bureau, Cheryl Tritt, testified that the FCC has not done a study
(continued...)

NERA study attached as Appendix IV addresses the state of competition and makes the following important findings:

- Cellular markets have grown rapidly (subscriberhip is growing at a 30-50% annual rate), with market share fluctuating significantly since the inception of the service.¹⁴⁸
- Demand is "quite inelastic," which "indicates the presence of significant price competition among the cellular duopolists."¹⁴⁹
- The price paid by consumers for cellular service has fallen substantially over the years.¹⁵⁰
- The FCC has authorized "enhanced" SMR service that will be competitive with cellular service in several markets.¹⁵¹
- Competition is adequate to prevent cellular carriers from obtaining market power.¹⁵²

The Commission cannot rationally adopt PCS rules in this proceeding that are specifically intended to create additional cellular competitors. To do so would simply create a new player in an

¹⁴⁶(...continued)

of cellular competition. In an August 7, 1992 letter to the Senator, Ms. Tritt indicated "there is no [FCC] report specifically addressing cellular competition." See *Communications Daily*, August 17, 1992 at 4.

¹⁴⁷ The Commission has observed that "facilities-based carriers are competing on the basis of market share, technology, service offerings, and service price." *Id.* A comprehensive document addressing the competitive state of the cellular industry is the *Report of the Bell Companies on Competition in Wireless Telecommunications Services, 1991*, filed as an attachment to *Memorandum of the Bell Companies in Support of Their Motion for Removal of Mobile and Other Wireless Services From the Scope of the Interexchange Restriction and Equal Access Requirement of Section II of the Decree*, in *United States v. Western Electric Co.*, Civ. No. 82-0192 (HHG) (D.D.C. filed December 13, 1991).

¹⁴⁸ NERA Study at 10-11.

¹⁴⁹ *Id.* at 12.

¹⁵⁰ *Id.* at 13.

¹⁵¹ *Id.* See *Fleet Call, Inc.*, 6 FCC Rcd. 1533 (1991); requests to expand this concept to other markets are pending. See Public Notice, *Private Radio Bureau Seeks Comments on Dial Page, L.P.'s Request for Rule Waiver to Implement a Digital, Trunked Specialized Mobile Radio System in Nine Southeastern States*, DA 92-1144 (released August 20, 1992).

¹⁵² NERA Study at 13-14.

existing service, not a new service; deter introduction of new technology in the cellular service; and decrease the spectral efficiency of cellular service.¹⁵³ Moreover, it would ignore the substantial record established herein concerning the need for, and feasibility of, new low-powered microcell services that use advanced, spectrally efficient technology.

CONCLUSION

For the foregoing reasons, BellSouth submits that the public interest would best be served by adoption of the BellSouth proposal as set forth in these Comments.

Respectfully submitted,

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November 9, 1992.

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¹⁵³ Cellular systems have been serving an increasing number of users with portable handsets instead of vehicular mobiles. While portables may be used in vehicles, they are frequently used either by pedestrians or by people in offices or homes. Thus, with the increase in portable use has come a decrease in the need for hand-offs in many areas; it has also led to a need for increased capacity and therefore smaller cells. Providing sufficient capacity to handle the demand for portable use, while keeping cells large enough to allow hand-offs for moving vehicles is a challenge to cellular designers.

One way that this design challenge is being met is by the introduction of digital cellular technology. The development and deployment of digital cellular and microcellular service has been driven by market forces. If one carrier increases capacity in a critical area, the other carrier has a strong incentive to do so in order to maintain market share. Ironically, the introduction of new cellular competition may deter the existing cellular carriers from making the transition to new, more advanced technology, and spectral efficiency will be decreased, for the reasons discussed in Section II.A.3, above. Accordingly, the introduction of a new cellular competitor would disserve the purpose for which the 2 GHz spectrum has been made available: the introduction of new services and advanced technologies in the service of spectral efficiency.

Appendix 1

Proposed Rules and Regulations

Appendix 1

Proposed Rules and Regulations

1. Section 1.1103 is amended by adding a new paragraph 20 to read as follows:

* * *

20. Personal Communications Service:

a. Auction participation	FCC 1000	XXX.XX	XYA	[address]
b. New license	FCC 1001	XXX.XX	XYB	[address]
c. Renewal of license	FCC 1003	XXX.XX	XYC	[address]
d. Modification, assignment, or transfer of control of license	FCC 1005	XXX.XX	XYD	[address]
e. Notifications	FCC 1007	XXX.XX	XYE	[address]

2. Section 1.2003 is amended to add the following:

FCC 1000	Statement of Eligibility to Participate in Personal Communications Service License Auction
FCC 1001	Application for Personal Communications Service Authorization under Part 99 of the FCC Rules
FCC 1003	Application for Modification of Personal Communications Service License
FCC 1005	Application for Renewal of a Personal Communications Service License
FCC 1007	Notification of the Status of Facilities or Operations in the Personal Communications Service

3. New Part 99 is added to read as follows:

Part 99 - Personal Communications Services

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AUTHORITY: 47 U.S.C. §§ 152, 154, 157, 201, 202, 214, 303, 307, and 332, unless otherwise noted.

Subpart A — General Information

§ 99.1 Scope.

This Part sets forth rules and regulations for the licensing and operation of stations in the Personal Communications Service (PCS).

§ 99.3 Other applicable rule parts.

Other Commission rule parts that may be relevant to the licensing and operation of stations in the Personal Communications Service include Parts 0, 1, 2, 5, 15, and 17.

§ 99.5 Definitions.

Effective isotropic radiated power (EIRP). The product of the power supplied to an antenna and the antenna gain relative to an isotropic antenna.

Local Loop Application Personal Communications Service. A personal communications service (*see below*) providing wireless subscriber access to a local landline communications network in lieu of wire connections.

Narrowband Personal Communications Service. A personal communications service (*see below*) using digital technology and providing innovative forms of one-way and two-way communications throughout a service area initially within a channel width no greater than 50 KHz.

Personal Communications Service (PCS). A family of mobile or portable radio communications services which are capable of serving individuals and businesses and are integrated with a variety of networks.

Unlicensed Personal Communications Service. A personal communications service whose spectrum is universally available in an unrestrictive market. It is characterized by high capacity and spectral efficiency. It utilizes low-power base stations and handsets employing equipment that incorporates an embedded sharing mechanism and a "spectrum sharing etiquette" that is an automatic and autonomous function of the equipment and incorporated into its design.

Wideband Personal Communications Service. A personal communications service characterized by high capacity and spectral efficiency, in which assigned spectrum may be divided into discrete channels that are utilized by grids of low-power base stations with small cell size.

Subpart B — Applications, Licenses, and Procedures

§ 99.101 Eligibility.

(a) *Auction participation.* Any person or entity, with the exception of foreign governments or the representatives thereof (*see* Section 310(a) of the Communications Act, 47 U.S.C. § 310(a)), shall be eligible to participate in an auction for the right to file an application for a PCS license.

(b) *Private carrier eligibility.* Any person or entity, with the exception of foreign governments or the representatives thereof (*see* Section 310(a) of the Communications Act, 47 U.S.C. § 310(a)), shall be eligible to file applications for or hold PCS licenses for private carrier use, to the extent private carrier PCS service is authorized under this Part.

(c) *Common carrier eligibility.* Any person or entity, with the exception of those persons rendered ineligible by Section 310(a)-(b) of the Communications Act, 47 U.S.C. § 310(a)-(b), shall be eligible to file applications for or to hold PCS licenses for common carrier use, to the extent common carrier PCS service is authorized under this Part.

§ 99.103 Permissible communications.

(a) The holder of a PCS license may provide any form of land mobile communications service between authorized base stations and mobile or portable stations that is consistent with the rules in this Part, except a PCS licensee may not provide a broadcast service as defined in Section 3(o) of the Communications Act, 47 U.S.C. § 153(o).

(b) The holder of a PCS license may provide any form of communications service between authorized base stations and fixed stations on an ancillary basis to land mobile communications service; any fixed services provided shall be secondary to land mobile communications service.

(c) The holder of a Local Loop Application PCS license may provide any form of land mobile communications service or fixed service between authorized base stations and mobile, portable, or fixed stations that is consistent with the rules in this Part, provided that such service is provided as a means of providing customers with access to a landline communications network.

§ 99.105 License term.

Licenses in the Personal Communications Service shall be issued for a term not exceeding ten years from the date of grant of the initial license or any renewal thereof.

§ 99.107 Application forms.

(a) FCC Form 1000 shall be filed to establish the eligibility of any person or entity to participate in any PCS license auction.

(b) FCC Form 1001 shall be filed by an applicant for an initial PCS license.

(c) FCC Form 1003 shall be filed by a PCS licensee for any modification of a PCS license requiring prior FCC authorization. In the case of an assignment of license or a transfer of control of a licensee, this form shall be filed jointly by the assignor or transferor and the proposed assignee or transferee.

(d) FCC Form 1005 shall be filed by a PCS licensee for renewal of its PCS license not less than thirty days prior to the expiration date of its license.

(f) FCC Form 1007 shall be filed by a PCS licensee to notify the Commission of the status of its facilities or operations, as required by this Part.

(g) Forms required to be filed by this Section shall be filed in duplicate, accompanied by the filing fee and at the location prescribed by Section 1.1103.

§ 99.109 Service areas for Wideband PCS and Local Loop Application PCS.

(a) A PCS licensee's service area is the geographic area within which it is authorized to provide service on its assigned frequency block.

(b) *Initial service areas.* Wideband PCS licenses shall initially be applied for and granted on the basis of predefined market areas known as Metropolitan Statistical Areas (MSAs) and Rural Service Areas (RSAs). The market area names, numbers, and definitions by county shall be as set forth in *Common Carrier Public Mobile Services Information: Cellular MSA/RSA Markets and Counties*, 7 FCC Rcd. 742 (1992).

(c) *Modification of service areas.* After award of an initial license, a licensee may modify the area where it is licensed to operate through a partial assignment of its license as follows:

(1) Any licensee wishing to assign part of its service area to another party shall file FCC Form 1003 to modify its license by deleting the area being assigned from its licensed area, conditioned upon consummation of the assignment.

(2) Simultaneously with the filing specified in (1), the assignee shall file FCC Form 1003 for acquisition of the service area being assigned. The assignee shall specify whether the service area being assigned is to be added to a contiguous co-channel service area licensed to the assignee or is to constitute a new, independent service area. Any such application shall be conditioned upon consummation of the assignment.

(3) The assignor and assignee shall have 6 months within which to consummate any such assignment, subject to extension by the Commission for good cause shown. Upon consummation of the assignments contemplated by (1) and (2), the Commission shall be notified by letter of the date of completion of the assignment or transfer.

(d) *Consensual extension beyond service area.* A licensee may not locate base stations or fixed stations outside its service area, extend service contours outside its service area, or represent that it provides service outside its service area, unless it submits FCC Form 1007 accompanied by the signed consent of the licensee for the co-channel frequency block in the affected extension area, and the affected licensee shall retain the right to terminate its consent at any time. If such consent is subsequently terminated, the licensee shall, within ten days, cease the activity requiring consent and file FCC Form 1007 notifying the Commission of the termination of such consent.

§ 99.111 Auction procedures.

(a) The Commission will utilize auctions for awarding the right to file applications for all initial PCS licenses. Auctions are conducted in accordance with the Commission's Auction Processing Manual, FCC INST 93-___, released __/__/93.

(b) The Commission will issue a public notice, which shall be published in the Federal Register, announcing its intention to hold an auction for PCS application filing rights. Publication of the public notice shall be no less than sixty days in advance of the auction date. This public notice will advise the public of the time, date, and location of the auction session, the market areas and frequency blocks for which bids may be submitted at such auction session, and the requirements for participating in the auction(s).

(c) Any eligible person or entity (*see* § 99.101) wishing to participate in an auction must file FCC Form 1000 with the requisite filing fee, establishing qualifications to participate, no less than ten business days prior to the date of any scheduled auction session. Only one FCC Form 1000 is required for any single auction session, even if multiple application filing rights are to be auctioned in a single session. To qualify to participate in the auction, a bidder must, in the application:

- (1) Supply the bidder's name, address, and telephone number;
- (2) Certify that the bidder is not a foreign government or representative thereof;
- (3) Supply identifying information for each person authorized to act as the bidder's representative, or alternate, at the auction;
- (4) Certify under penalty of perjury that the person or persons authorized to act as the bidder's representative, or alternate, has full authority to act on behalf of the bidder at the auction, and that a bid submitted by any such person on behalf of the bidder will, if accepted, be legally binding on the bidder.

(d) A bidder must submit evidence of creditworthiness consisting of either a certified check or cashier's check or an irrevocable letter of credit, from a financial institution subject to regulation by the Federal Reserve Board;

(1) If an auction is conducted by sealed bid, the evidence of creditworthiness must be included with the bid in the amount of 20% or more of the bid. Evidence of creditworthiness not meeting this standard shall render the bid null and void.

(2) If an auction is conducted at an open auction, the evidence of creditworthiness must be submitted prior to the opening of bidding for any license bid upon in the amount of 20% or more of the bidder's maximum bid. If a winning bidder at an open auction has not met this standard, the auction for such license shall be rendered null and void and a new auction will be held immediately, in which the former winning bidder and its representative shall be disqualified from participation.

(3) The Commission will release all losing bidders' evidence of creditworthiness immediately after accepting a winning bid.

(4) The percentage of the winning bid required by (1) or (2) respectively shall be credited to a non-refundable deposit on behalf of the winning bidder, the proceeds of which, net of any auctioneer's fee, shall be paid to the United States Treasury; any excess shall be released or refunded to the bidder.

(e) Auctions shall be conducted in public. In the case of closed-bid auctions, all bids shall be opened in public. The Secretary of the Commission, or an authorized representative thereof, shall certify the results of each auction. The certified results shall be placed on public notice and published in the Federal Register.

§ 99.113 Rights of winning bidder after auction.

(a) The person or entity certified as the winning bidder for the right to file a particular PCS application shall have an exclusive right to file such application within 30 days of the Federal Register publication of the certified auction results, which filing period shall not be extended. If no such application is filed within 30 days, the right to file a PCS application shall be forfeited.

(b) The right to file a particular PCS application is freely assignable, *provided that* (1) the right to file a particular PCS application may not be subdivided through assignment; (2) any such assignment must be unconditional and irrevocable; (3) the assignment pertains to the entire right to file the particular PCS application; and (4) the assignee shall have all rights and assume all obligations of the assignor with respect to the right to file the particular PCS application.

§ 99.115 Post-auction application procedure and contents.

(a) An application filed pursuant to Section 99.113 shall be submitted on FCC Form 1001, together with the required filing fee within the time prescribed in Section 99.113(a).

(b) The application shall contain all information required by the application form and shall include the following exhibits:

(1) *Legal qualifications.* The applicant shall include: (A) a disclosure of its ownership and real parties in interest pursuant to Section 99.125, (B) a demonstration of its eligibility pursuant to Section 99.101, (C) a showing of its right to file the application (including documentation of any assignments of such right satisfying Section 99.113(b)), (D) a demonstration of its organization as a legal entity (e.g., a certificate from state of organization of good standing of corporation or limited partnership, or a written general partnership agreement) if the applicant is not an individual, (E) a certification that the applicant, and the owners thereof, does not have any attributable interest in another pending application of the same class for the same market area; and (F) a showing of the applicant's qualifications to hold an FCC license. Qualification to do business in the state(s) including the service area of the application is not required.

(2) *Technical qualifications.* The applicant shall include: (A) a description of the technical nature of the system proposed to be constructed, the services to be provided, the technology to be employed, the air and network interfaces to be used, the areas within the service area where service will be provided, and a proposed implementation schedule; and (B) a showing of availability of the technical resources and personnel needed to carry out the proposals set forth in (A).

(3) *Financial qualifications.* The applicant shall satisfy its obligation to pay the amount of the winning bid that remains outstanding after application of the non-refundable deposit pursuant to Section 99.111(d)(4). This balance due must be satisfied in full prior to grant in one of the following ways:

(A) Tender of the entire balance due by certified check or cashier's check drawn on a financial institution subject to regulation by the Federal Reserve Board;

(B) Tender of a note in a form approved by the Secretary of the Treasury with a term of seven years for the balance due payable to the United States of America, bearing

interest at the rate established by the Secretary of the Treasury pursuant to 26 U.S.C. § 6621(a)(2)-(b) and compounded as set forth in 26 U.S.C. § 6622(a), with interest payable quarterly in arrears starting with the quarter beginning on the second anniversary of grant, and with the principal amount payable in full on the seventh anniversary of grant; *provided* that such note is in a form approved by the Secretary of the Treasury; and *further provided* that the maker's obligation for the entire balance of the note shall be accelerated and the balance shall be due and payable in full in the event of default on any required payment; or

(C) Tender of part of the balance due by certified check or cashier's check drawn on a financial institution subject to regulation by the Federal Reserve Board, and tender of the remaining balance due by a note complying with (B).

(c) The Commission will promptly review applications for compliance with (a) and (b).

(i) An application complying with (a) and (b) shall be listed on a public notice as acceptable for filing within 45 days of the date on which the required information is submitted.

(ii) An application failing to include the filing fee required by (a) at the time of filing or failing to comply fully with (b)(3) within 30 days of filing shall be dismissed as unacceptable for filing and the non-refundable deposit paid pursuant to Section 99.111(d)(4) shall be forfeited.

(iii) Except as provided in (ii), if the Commission, on review of the application, finds that the application fails to comply fully with (b), it shall notify the applicant of any deficiencies found within 10 days of the filing of the application and the applicant shall be permitted to supply additional information by minor amendment within thirty days of the date of such notification.

(iv) An application that fails to comply fully with (b) shall be dismissed as unacceptable for filing and the non-refundable deposit paid pursuant to Section 99.111(d)(4) shall be forfeited, *provided* that the Commission shall have notified the applicant of any deficiencies and afforded the applicant 30 days to supply any additional information required, and *further provided* that such application may not be dismissed unless the deficiencies remain 60 days after filing.

(d) The Commission shall issue a public notice of any dismissals for unacceptability for filing and, by separate public notice, shall, as prescribed in Section 99.111(b), announce its intention to auction again the application filing rights for the areas for which applications were dismissed.

(e) If the applicant seeks authorization to operate as a common carrier, petitions to deny the application may be filed by any party in interest within 30 days of such acceptance of filing, and oppositions and replies may be filed within the time periods set forth in Section 1.45. The applicant may file any amendments needed to address issues raised by petitions. Action on petitions shall be governed by 47 U.S.C. § 309(d).

(f) After finding an application acceptable for filing (and, if (e) applies, after consideration of petitions and responsive materials), the Commission shall determine whether the applicant is legally, technically, and financially qualified and grant of the application would serve the public interest. If so, it shall grant the application and issue a public notice of such grant. If substantial and material questions of fact exist, the Commission shall conduct a hearing pursuant to 47 U.S.C. § 309(i)(2) and § 309(e). If the Commission finds the applicant unqualified or finds that the public interest would not be served by grant, it shall deny the application and return any tender of balance due, but the non-refundable deposit paid pursuant to § 99.111(d)(4) shall be forfeited.

(g) The grant of any application in which the applicant's financial qualifications were established pursuant to (b)(3)(B)-(C) shall be conditioned on payment of all outstanding principal and interest when due and shall be subject to automatic cancellation of the license for a default on any required payment.

(h) Any tendered payment of the balance due submitted in satisfaction of the requirements of (b)(3) shall become the property of the United States effective upon grant of a license. Acceptance of such tender by the United States shall not confer any property right in the license, and the licensee shall not have any claim against the United States if the license conferred is subsequently revoked or modified, forfeitures are assessed, or renewal of license is denied according to the provisions of the Communications Act.

§ 99.117 Applications for modification of license.

(a) Applications for modification of license shall be filed on FCC Form 1003, together with the required filing fee.

(b) Applications for modification of license must be filed for the following:

- (1) Transfer of control or assignment of license;
- (2) Construction of facilities constituting a "major action" pursuant to Section 1.1301 of the Rules;
- (3) Construction of facilities involving antenna structures requiring FAA notification or involve marking and lighting requirements (*see* Part 17).

§ 99.119 Applications for renewal of license.

(a) Applications for renewal of license shall be filed on FCC Form 1005 together with the required filing fee not less than thirty days prior to the expiration date of the license. A licensee who has timely filed a renewal application may continue operating pending action on the application. A renewal application containing the information called for by FCC Form 1005 shall be deemed acceptable for filing.

(b) If renewal is sought by a PCS licensee operating as a common carrier, the Commission shall issue a public notice of its acceptance of the renewal application for filing. Petitions to deny the renewal may be filed by any party in interest within 30 days of such acceptance of filing, and oppositions and replies may be filed within the time periods set forth in Section 1.45. The applicant may file any amendments needed to address issues raised by petitions. Action on petitions shall be governed by 47 U.S.C. § 309(d).

(c) After finding a renewal application acceptable for filing (and, if (b) applies, after consideration of petitions and responsive materials), the Commission shall determine whether a grant of the renewal application would serve the public interest. If so, it shall grant the application, pursuant to Section 307(c) of the Communications Act, and issue a public notice of such grant. If substantial and material questions of fact exist, the Commission shall conduct a hearing pursuant to 47 U.S.C. § 309(e). If the Commission finds the renewal applicant unqualified or finds that the public

interest would not be served by grant, it shall deny renewal and hold an auction for the right to file a new initial application for the service area, pursuant to the procedures set forth in Sections 99.111 through 99.115.

§ 99.121 Notifications.

(a) Notifications of the status of a licensee's facilities or operations shall be filed on FCC Form 1007 . . .

§ 99.123 Transfers of control; assignments of license.

(a) The transfer of control of a licensee or the assignment of license constitutes a modification of license; an application must be filed on FCC Form 1003 for grant of authorization to carry out either kind of modification. The transferor and transferee or the assignor and assignee shall jointly file such application. The showing of legal qualifications shall pertain to the licensee that would result from the proposed transfer or assignment.

§ 99.125 Ownership; Real parties in interest.

Each application for an initial license, modification of license (including assignments and transfers), or renewal of license must disclose fully the real party or parties in interest in the application. In the case of an assignment or transfer application, the "applicant" for purposes of this rule is the assignee or transferee. A determination of real party in interest may be made on a case-by-case basis. To facilitate this determination, each application must identify all parties to the application as set forth below. This includes identification of those owning or controlling the applicant as described in (a) and identification of subsidiaries and affiliates as described in (b). For each party identified, the information set forth in (c) must be supplied.

(a) (i) All persons having de facto or de jure control of the applicant, whether by ownership, contract, or otherwise;

(ii) For corporations, all persons holding 5% or more of any class of stock or other equity securities of the corporation, including preferred stock and nonvoting stock, must be identified; in the event such stock is held for the benefit of others, the beneficial owner(s) must be identified in addition to the holder.

(iii) For partnerships, all partners must be identified.

(iv) For trusts, the trustee(s) and the beneficiaries must be identified; in the case of a revocable trust, the grantor must also be identified.

(v) For individual applicants, joint tenancies, tenancies in common, tenancies by the entireties, joint ventures, and joint applications, each person must be identified.

(vi) For each party who must be identified pursuant to (i)-(v), identification must also be made of all persons who would have an identifiable interest in such party if such party were in turn the applicant.

(b) Subsidiaries and affiliates of the applicant must be identified if such subsidiaries or affiliates are engaged in the provision of Personal Communications Service or have a pending application for same, and if the services provided or applied for by such subsidiaries or affiliates are within the same service area as the applicant, as defined by Section 99.109.

(i) For purposes of this rule, a subsidiary is any entity for which the applicant or any officer, director, stockholder, or key manager of the applicant owns 5% or more of any class of the stock or equity securities.

(ii) For purposes of this section, an affiliate is any entity that holds a 5% or greater interest in the applicant or any entity in which a 5% or greater interest is held by an entity that in turn also holds a 5% or greater interest in the applicant.

(c) For each party that must be identified, the following information must be supplied: name, address, citizenship, and agreements with other parties identified that affect control of the applicant (e.g., voting trusts).

§ 99.127 Interconnection with the Public Switched Telephone Network.

(a) Licensed PCS systems, subject to the limitations in section (c) and (d) below, may be interconnected with the public switched network, in order to allow interchange of communications between PCS subscriber (mobile or portable) stations and landline telephones.

(b) Upon a request which conforms with Section (d) below, local exchange carriers and interexchange carriers must provide facilities for the interconnection of a licensed PCS system. The interconnection facilities must be reasonably suited to PCS system requirements to the extent the requested facilities can be provided.

(c) Interconnection of common carrier PCS systems shall be governed by the same interconnection policies as apply to cellular radio licensees under Part 22 of the Rules.

(d) Private carrier PCS systems shall not be interconnected with a telephone exchange or interexchange service or facility for any purpose, except to the extent that (A) each user of the system obtains such interconnection directly from a duly authorized carrier, or (B) users jointly obtain such interconnection directly from a duly authorized carrier.

Subpart C — Technical and Operating Requirements

§ 99.201 Frequencies.

Licensed Personal Communications Service stations will be assigned frequencies as set forth in the following tables:

(a) Narrowband PCS: 20 pairs of 50 kHz channels and 20 unpaired 50 kHz channels as follows:

Channel number	Base station center frequency (MHz)	Mobile/portable station center frequency (MHz)
NP01	901.025	940.025
NP02	901.075	940.075
NP03	901.125	940.125
NP04	901.175	940.175
NP05	901.225	940.225
NP06	901.275	940.275
NP07	901.325	940.325
NP08	901.375	940.375
NP09	901.425	940.425
NP10	901.475	940.475
NP11	901.525	940.525
NP12	901.575	940.575
NP13	901.625	940.625
NP14	901.675	940.675
NP15	901.725	940.725
NP16	901.775	940.775
NP17	901.825	940.825
NP18	901.875	940.875
NP19	901.925	940.925
NP20	901.975	940.975
NU01	930.025	
NU02	930.075	
NU03	930.125	
NU04	930.175	
NU05	930.225	
NU06	930.275	
NU07	930.325	
NU08	930.375	
NU09	930.425	
NU10	930.475	
NU11	930.525	
NU12	930.575	
NU13	930.625	
NU14	930.675	
NU15	930.725	
NU16	930.775	
NU17	930.825	
NU18	930.875	
NU19	930.925	
NU20	930.975	

- (b) Wideband PCS: 5 pairs of 10 MHz frequency bands as follows:

Channel Block	Subband 1 Frequency (MHz)	Subband 2 Frequency (MHz)
A	1850-1860	1930-1940
B	1860-1870	1940-1950
C	1870-1880	1950-1960
D	1880-1890	1960-1970
E	1890-1900	1970-1980

- (c) (1) Local Loop Application PCS: one pair of 5 MHz frequency bands and one additional pair of 5 MHz frequency bands for reserve purposes, as follows:

Channel Block	Subband 1 Frequency (MHz)	Subband 2 Frequency (MHz)
LL	1900-1905	1980-1985
LL-Reserve	1905-1910	1985-1990

(2) Initial applications may only be filed for channel block LL, and initial license grants shall authorize only the use of that channel block. A licensee may apply for access to channel block LL-Reserve by filing a modification application on FCC Form 1003; the licensee must make a technical and economic demonstration of need for access to the additional spectrum.

- (d) Unlicensed PCS: one 20 MHz frequency band as follows:

Channel Block	Base/Mobile/Portable Station Frequency Band
U	1910-1930 MHz

§ 99.203 Equipment authorization required.

[Introduction, (a), and (b) are the same as § 99.403 in Appendix A to the *NPRM*]

- (c) Equipment to be type accepted must conform to generally accepted interface standards for the type of equipment involved.

§ 99.205 Power and antenna height limits.

- (a) In the Wideband Personal Communications Service and the Local Loop Personal Communications Service, all transmitters are limited to a peak power output density limit of 0.2 milliwatts per kilohertz of equivalent channel bandwidth, except for channel bandwidths of less than

200 kHz which will have a maximum peak power output limit of 40 milliwatts. There are no restrictions on antenna height.

(b) In the Narrowband Personal Communications Service, the maximum base station transmitting power shall be 3500 watts EIRP and the maximum mobile or portable station transmitting power shall be 2 watts EIRP. There are no restrictions on antenna height.

(c) In the Unlicensed Personal Communications Service all transmitters are limited to a peak power output density limit of 0.2 milliwatts per kilohertz of equivalent channel bandwidth. Furthermore, at or below an equivalent channel bandwidth of 200 kHz, the maximum peak power output limit would be 40 milliwatts. There are no restrictions on antenna height.

THE DEVELOPMENT OF PCS IN THE UK: LESSONS FOR THE FCC

by

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November 1992

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Acknowledgements: I should like to thank Larry Stone, Regulation Manager at Cellnet; E. Peet of the Vodafone Group; Nicholas Davidson at the DTI; Matthew Hare at Millicom Holdings; Bill Wigglesworth, Director General of Oftel and Mr. R.J. E. Croll also at Oftel; and John Pickin, an independent Telecommunications consultant.

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THE DEVELOPMENT OF PCS IN THE UK: LESSONS FOR THE FCC

ABSTRACT

The Federal Communications Commission (FCC) has issued a Notice of Proposed Rule Making (NPRM) outlining its tentative proposals in the area of Personal Communications Systems (PCS). PCS is a generic term for a set of communications services that are personal and radio-based, complementing existing networks. In this paper we evaluate the proposals put forward by the FCC in light of the recent communications experience in the United Kingdom (UK). Drawing on UK developments, we focus on the issues of license eligibility, the number of licenses and the geographic scope of licenses which should be adopted for PCS in the United States (US).

The UK introduced PCS in three phases. The first phase was Telepoint; the second phase was the introduction of Personal Communications Networks (PCN) -- a subset of PCS; the third phase is taking place at present following the government's Duopoly Review published in March 1991. The most interesting phase, and one that the FCC can benefit most from examining, is the UK's PCN experience.

In 1989, the UK released spectrum around 2 GHz to support PCNs. The UK issued three licenses. In line with historic universality requirements imposed in the UK, the licenses contained nationwide coverage provisions. The UK authorities excluded British Telecom (BT) and incumbent cellular operators from acquiring licenses. They also encouraged the new PCN licensees to compete with the two existing cellular operators. Since the issuing of the original three licenses, two of the three PCN operators have merged. Following the government's encouragement, PCN has developed as a cellular look-alike service.

Three main recommendations for the FCC can be drawn from the UK's experience with PCS. First, licenses ought not to be narrowly defined in terms of specific technologies or services -- such as PCN in the UK; otherwise PCS runs the risk of becoming a cellular look-alike service. This has negatively impacted on the diversity of new service offerings in the UK. Second, local licenses at the MSA and RSA level are preferable to large regional or nationwide licenses; this allocation will help ensure the financial success of the service, greater responsiveness to customer needs, and promote innovations. Local licensing also promotes prompt service deployment in less populated areas. Third, all telecommunications operators should be eligible to hold licenses, so that PCS can benefit from the valuable experience of incumbent operators and to allow for the bi-directional convergence of fixed and mobile services reflected in technical developments.

If the lessons of the UK experience are heeded, a competitive market structure will be established for PCS in the US, leading to a higher chance that universality, speed of deployment and service diversity objectives will be achieved. Furthermore, competition will generate more innovations, stimulate growth and benefit US trade.

1. INTRODUCTION

The advent of PCS is being heralded by the FCC as a breakthrough which will carry wireless communications to the twenty-first century and which is likely to lead to an impact at least as large as cellular communications technologies in the 1980s. A similar optimistic view concerning the potential of personal communications was also expressed by governmental authorities in the UK with Lord Young (former Secretary of State of the Department for Trade and Industry, DTI) remarking that PCNs "will ensure that the UK keeps its position at the leading edge into the '90s and beyond."

In the UK, personal communications first caught the public imagination through the promotion of Telepoint and PCNs. The driving force behind the introduction of both services was the DTI. In January 1989, the DTI published an influential document entitled "Phones on the Move", focusing on PCNs and how they should be developed in the UK. The UK Government's approach was "to create a pro competitive liberalised environment and foster an awareness of opportunities based on the exploitation of new technology." The DTI stated that PCNs raise "the prospect of a new generation of mobile radio systems which will be distinct from cellular radio systems yet will compete with them for the market they will be serving in the 1990s." ^{1/} The DTI document had little specific information as to what constituted a PCN, however. The Department stated that it was better to let the market to determine the service. Lord Young

^{1/} See "Phones on the Move: Personal Communications in the 1990s - A Discussion Document," January 1989. PCN was the term used in the UK for PCS in 1989, but has since become synonymous with a more specific service offering. We discuss this below.

remarked at the time "it will be for industry to take up the challenge by responding with innovative and practical ideas." ^{2/} As discussed below, the framework established by the UK Government for PCN services and its failure to better clarify the scope of service, has led to the development of a cellular look-alike service and not the hoped-for diversity of new service offerings.

Based on the experience in the UK, it is important to emphasize to policy makers in the US that PCS should be viewed as something more than a look-alike cellular opportunity. Unfortunately, the FCC's NPRM is ambiguous on this point. ^{3/} The NPRM states that "PCS [can] be defined as a family of mobile or portable radio communications services which could provide services to individuals and businesses, and be integrated with a variety of competing networks". ^{4/} This is a very general definition and could be used to describe present day cellular technologies. Likewise, the FCC advances the proposition that PCS will allow for advanced forms of cellular telephone services in addition to wireless LANs and wireless PBXs all conveying voice, data, imaging and other new services. ^{5/} Because many of the services listed by the FCC are available today with the use of existing technologies, this view may lead the FCC to adopt a PCS

^{2/} The imprecise scope of the DTT's definition of PCNs was also in line with views within the UK at that time. For example, in Unitel's PCN application, it expressed the view that PCNs would provide "phones for people not places."

^{3/} The Federal Communications Commission Notice of Proposed Rule Making and Tentative Decision, Gen. Docket No. 90-314, ET Docket No. 92-100 (released July 16, 1992).

^{4/} NPRM at para. 29.

^{5/} NPRM at para. 12.